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U. S. DEPARTMENT OF AGRICULTURE,

BUREAU OF ANIMAL INDUSTRY.—CIRCULAR 204.

A. D. MELVIN, CHIEF OF BUREAU.

OFFICIALS, ORGANIZATIONS, AND EDUCATIONAL INSTITUTIONS CONNECTED WITH THE DAIRY INTERESTS (1912).

The accompanying lists, compiled under the direction of B. H. Rawl, Chief of the Dairy Division, contain the names and addresses of the principal officials connected with the dairy industry, and show facilities offered in the several States for technical dairy instruction.

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UNITED STATES DEPARTMENT OF AGRICULTURE.

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BUREAU OF ANIMAL INDUSTRY.

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DAIRY DIVISION.

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ERNEST KELLY, *in charge of Market Milk Investigations.*

ROBERT MCADAM, *in charge of Renovated Butter Inspection.*

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WORK OF THE DAIRY DIVISION.

The Dairy Division of the Bureau of Animal Industry, United States Department of Agriculture, is engaged in various lines of educational and research work. Information is collected and distributed concerning all branches of dairying, including the care and improvement of dairy cattle and the production, care, and distribution of dairy products. Statistics are compiled and information is collected relative to dairy organizations, dairy schools, facilities for technical instruction, State and municipal laws, the development of markets, the milk supply of cities, and the organization of creameries and cheese factories. Almost one-third of the Dairy Division force is employed in research work relative to various fundamental dairy problems.

Aside from the principal lines of research, which, as a rule, pertain directly to dairy products, some work is in progress in connection with engineering problems that affect various branches of the industry. This work relates to the design, materials, and construction of all kinds of dairy buildings, including stables, silos, milk houses, milk plants, creameries, etc., also problems in ventilation, water supply and sewage disposal, the mechanical equipment of creameries, milk plants, and dairy buildings, with special reference to the installation of labor-saving devices, the economical use of fuel, and the application of electricity and refrigeration to the dairy industry.

The division, aside from the general administrative work, is divided into four sections, each of which does both research and educational work. About 100 persons are employed.

DAIRY FARMING.

This work includes problems in the housing and feeding of dairy cattle, remodeling old barns and building new ones, the construction of silos, the selection and breeding of dairy herds, keeping records of the performance of individual cows, the organization of cow-testing associations and bull associations, and attendance at farmers' institutes and other agricultural meetings.

A special effort has been made to develop dairying in the South by cooperating with the agricultural colleges, experiment stations, and State departments of agriculture, in giving assistance to individual dairymen, conducting dairy short courses, etc. Similar work is now being done in some of the Western States where dairying is not well developed.

In sections where dairying is well developed work is in progress relative to cow-testing associations, which are self-supporting associations of dairymen who organize for the purpose of determining by monthly tests the productivity of the individual cows in their herds, with a view to improving the average production of the herd. Along with the cow-testing associations, bull associations are being organized, which are cooperative associations among dairymen for the purchase and interchange of purebred bulls to be used in grading up their herds.

DAIRY MANUFACTURES.

The work of this section is almost entirely educational, the object being to put into actual practice the knowledge obtained from scientific research. By means of correspondence and by sending men into the field assistance is given to creameries in improving methods of manufacture, preventing losses, and keeping accurate records, all of which contribute materially toward putting them on a more profitable basis.

The Dairy Division maintains offices in New York, Chicago, and San Francisco, with a butter expert in each place whose special duty it is to inspect the butter received at these markets and give helpful suggestions to the creameries where the butter is made. Inspectors also examine butter collected by State authorities for educational purposes and investigate the general system of scoring butter in the markets.

Under the act of Congress of May 9, 1902, the Dairy Division is responsible for the inspection of renovated butter and of the factories producing the same. It is also charged with inspections of renovated butter for export at Chicago, New York, and Boston. The sanitary condition of renovated-butter factories is rated on the basis of a score card prepared by the division, and the factories are required to maintain the standard established. The quality of the packing stock (or butter to be renovated) is also carefully examined and passed upon by the inspectors. Two men are regularly engaged in this work, and are assisted by 21 meat inspectors in cities where both meat and renovated-butter inspection are carried on.

MARKET MILK.

This section is devoted largely to educational work for better methods in the production and handling of market milk and cream. The work is carried on by means of correspondence, lectures, demonstration inspections, exhibitions, milk contests, and personal visits. The work is mostly performed in cooperation with local health and dairy officials. Direct assistance has been given to the health departments of 245 cities and towns. Upon request, meetings are held with milk producers, physicians, boards of health, and milk consumers generally, for the purpose of discussing problems relating to the improvement of the milk supply and milk ordinances.

The score-card system of dairy-farm inspection has been introduced in 189 cities, and as a result the inspection has been rendered much more efficient.

An important feature of educational work carried on by this section is conducting milk and cream shows or contests, in which samples of milk and cream are entered by various producers for examination and scoring.

Investigations are being made regarding the operation of city milk plants, both from a sanitary and an economical standpoint. Some work is also being done in investigating the conditions under which milk is handled in city stores.

RESEARCH LABORATORIES.

These laboratories are concerned with the bacteriology and chemistry involved in the manufacture, handling, and distribution of all dairy products.

A study is made of the bacteria which occur in cream and of the other factors which have an influence on the chemical changes occurring in butter during its manufacture and storage and the relation of these changes to alterations in flavor. These investigations include renovated butter and methods of improving butter made under farm conditions. For the purpose of carrying on this work more efficiently bacteriological and chemical laboratories have been equipped in the creamery at Troy, Pa.

Investigations are made into the chemical changes involved in the ripening of various types of cheese and of the influence of microorganisms on these changes. This work includes a study of the methods of manufacture, curing, storing, and marketing. The work on Cheddar cheese is conducted at Madison, Wis., in cooperation with the Wisconsin Agricultural Experiment Station; on soft cheese at Storrs, Conn., in cooperation with the Connecticut Agricultural Experiment Station; and on Swiss cheese at Washington, D. C., and at State College, Pa., in cooperation with the Pennsylvania Agricultural Experiment Station.

The work on market milk includes an extensive study of the bacteria growing in milk both before and after pasteurization and the by-products of their growth under various conditions. The bacteriological work is supplemented by chemical studies of the changes produced in milk by pasteurization and by the growth of bacteria.

Methods are developed for the more profitable utilization of the by-products of the creamery and cheese factory.

The division is cooperating with the Missouri Experiment Station in investigating the variation in normal milk as affected by feed. This necessitates determining the variation due to peculiarities of breed, to gestation, period of lactation, loss or gain in body weight, etc. Special study is made of the composition of butter fats, the comparative size of fat globules from milk of different breeds, the coloring matter of milk, and the proportions of caseins and albuminoids.

STATE DAIRY OFFICIALS.

CALIFORNIA. Secretary of State dairy bureau, F. W. Andreasen, 16 California Street, San Francisco; chemist, Chester F. Hoyt, San Francisco; 12 inspectors; appropriation, \$20,000. The State dairy bureau consists of three members, appointed by the governor, who serve without compensation.

COLORADO. State dairy commissioner, Robert L. Cochran, Morrison; deputy commissioner, Frank P. Sheafor, Denver. Inspections are made by the commissioner or deputy commissioner. Appropriation, \$8,000 annually.

CONNECTICUT. Dairy and food commissioner, Hubert F. Potter; deputy commissioner, Tyler Cruttenden. Three inspectors. Appropriation by the general assembly for two years, \$22,600, with an addition of \$2,500 per year for analytical work done at the Agricultural Experiment Station, New Haven.

IDAHO. State dairy, food, and sanitary inspector, James H. Wallis, Boise; State chemist, Claude D. Mason.

ILLINOIS. State food commissioner, Alfred H. Jones, Robinson; assistant commissioner, John B. Newman, Elgin. State analyst, bacteriologist, 18 inspectors, and 9 chemists. Office, 1627 Manhattan Building, Chicago.

INDIANA. State food and drug commissioner, H. E. Barnard, Indianapolis; food chemist, H. E. Bishop; assistant food chemists, W. D. McAbee and Cullen Thomas. Six inspectors. Appropriation, \$25,000.

IOWA. State dairy and food commissioner, W. B. Barney, Hampton; deputy commissioner, B. C. Iliff, Des Moines; assistant dairy commissioners, J. J. Ross, Iowa Falls; T. A. Clarke, West Bend; G. H. Tellier, Ames; P. W. Crowley, Ames; H. E. Forrester, Lake Mills; chief chemist, J. R. Chittick; three assistant chemists; State dairy inspector, O. P. Thompson, Waterloo; State dairy expert, E. S. Estel, Waterloo. Six food inspectors, 16 milk inspectors. Appropriation for dairy and food department, \$24,000 annually, besides salaries; biennial appropriation for State dairy expert and assistant, \$7,500.

KANSAS. State dairy commissioner, ———; deputy commissioner, W. F. Droege. Appropriation, \$7,500.

KENTUCKY. The State food and drugs act is enforced by the experiment station, and particular attention is given to milk and dairy products. Chief of food and drug division, R. M. Allen, Lexington.

MAINE. Commissioner of agriculture, J. P. Buckley, Westbrook; State dairy instructor, W. T. Guptill, Topsham; State dairy inspector, R. S. Smith, Auburn.

MASSACHUSETTS. Executive officer of the dairy bureau is the secretary of the State board of agriculture. General agent, State dairy bureau, P. M. Hardwood, 136 State House, Boston; chemists, Dr. B. F. Davenport, 161 Tremont Street, Boston; Dr. H. C. Emerson, 177 State Street, Springfield. Five inspectors. Appropriation, \$8,000.

MICHIGAN. State dairy and food commissioner, Gilman M. Dame, Lansing; deputy commissioner, James W. Helme, Adrian. Eight dairy and food inspectors. Appropriation, \$35,000; fees, about \$10,000 additional.

MINNESOTA. State dairy and food commissioner, Joel G. Winkjer, St. Paul; assistant commissioner, John McCabe, St. Peter. Seven inspectors for butter, two for cheese, four for herd and barn and milk, one for canning factory, and four other food inspectors. Appropriation, \$50,000.

MISSOURI. Food and drug commissioner (also acting State dairy commissioner), Dr. W. P. Cutler, Columbia; deputy food and drug commissioner and analyst, J. O. Halverson, Columbia; chemist, Dr. P. F. Trowbridge. Six inspectors.

NEBRASKA. Food, drug, and dairy commissioner, Gov. Chester C. Aldrich, Lincoln; deputy commissioner in charge, N. P. Hansen; State chemist, E. L. Redfern, Lincoln. Four dairy inspectors, four food and drug inspectors. Biennial appropriation, \$30,000, with \$3,000 additional for office and laboratory.

NEW JERSEY. Chief of the division of creameries and dairies, State board of health, George W. McGuire, Trenton; assistant chief, A. I. Goehrig, Trenton; inspectors, S. S. Van Druff, Sussex; William J. Willsey, New Brunswick; Dr. Fred. C. Robertson, Jersey City.

NEW YORK. Commissioner of agriculture (including dairy), Calvin J. Huson; first assistant commissioner, George L. Flanders, Albany; assistant commissioners, Henry H. Kracke, 23 Park Row, New York; S. Brown Richardson, Lowville; E. J. Preston, Amenia; C. E. Sackett, 44 Arcade Building, Utica; C. T. Russell, Courthouse, Syracuse; Verlett C. Beebe, Arcade.

NORTH DAKOTA. State dairy commissioner, R. F. Flint, Bismarck; assistant dairy commissioner, E. H. Pierce, Bismarck. Appropriation for dairy inspection, \$5,000 and fees collected from licenses; appropriation for food inspection, including laboratory work, \$10,000 and fees.

OHIO. State dairy and food commissioner, Sylvanus E. Strode, Columbus; chief inspector, Benj. F. Gayman, Canal Winchester. Two assistant commissioners, 10 dairy, food and drug inspectors, 5 consulting chemists. Appropriation, \$51,290.

OKLAHOMA. The State board of agriculture is the State dairy commission; president, G. T. Bryan; secretary, Benj. F. Hennessy; financial secretary, Kirby Frans; State dairy commissioner, A. F. Howe; State dairy inspector, R. D. McManus. Appropriation, \$5,000.

OREGON. State dairy and food commissioner, J. W. Bailey, room 19, Breeden Building, Portland; deputy commissioner and State chemist, A. S. Wells. Three dairy inspectors.

PENNSYLVANIA. State dairy and food commissioner, James Foust, Harrisburg. Nineteen special agents, 9 chemists, 6 attorneys. Appropriation \$180,000 for two years, which is more than covered by fees, fines, and costs collected.

TEXAS. Dairy and food commissioner, J. S. Abbott; secretary, Miss Kate Casparis; chemists, R. H. Hoffman, jr., E. H. Golaz, P. S. Tilson, Houston; inspectors, C. L. Stone, Tom H. Johnson.

UTAH. Dairy and food commissioner, Willard Hansen, Salt Lake City; deputy commissioners, Heber C. Smith, J. Carlos Lambert, William P. Pratt, and C. E. Condie; State chemist, Herman Harms. Two inspectors. Appropriation \$14,000 for two years.

VIRGINIA. State dairy and food commissioner, William D. Saunders, Hunter Hall, Va.; deputy commissioner, Benjamin L. Purcell, Richmond. Seven inspectors. Appropriation \$7,500, also income from tag sales and licenses from stock and poultry feeds, wheat and corn mills, creameries, cheese factories, and dairy products.

WASHINGTON. State dairy and food commissioner, L. Davies, Davenport; dairy instructor, L. W. Hanson, Seattle; deputy dairy and food commissioner, Will H. Adams, Spokane; dairy inspectors, George S. Henderson, Seattle; O. C. Van Houten, Park; W. T. Bowman, Spokane; chemists, Elton Fulmer, Pullman; Charles W. Johnson, Seattle. Appropriation for two years, \$42,600.

WISCONSIN. State dairy and food commissioner, J. Q. Emery, Madison; assistant commissioner, U. S. Baer, Madison; second assistant commissioner, H. C. Larson, Madison. One chemist, 4 assistant chemists, and 11 inspectors; 2 inspectors of other foods. Appropriation approximating \$50,000.

WYOMING. State dairy, food, and oil commissioner, Maurice Groshon; State chemist, Prof. R. B. Moudy. Appropriation, \$6,000 for two years.

DAIRY INSTRUCTION.

Most of the State agricultural colleges and some other institutions offer courses in dairying, varying in length from only a few weeks to four years. Instruction is given by lectures, laboratory practice, and work in the dairy. There are few entrance requirements to the short courses.

All of the instruction given in the short courses is offered to the students taking longer dairy courses or the full college courses in agriculture. The latter students specialize along lines in which they are most interested.

The names of institutions at which instruction in dairying is given, the kind and amount of the work, as well as the season when offered, together with the names and addresses of instructors in charge, to whom requests for further information may be sent, are stated below:

ALABAMA. *Alabama Polytechnic Institute.* College course, dairying, sophomore year, September 6 to December 20, two hours per week lectures and four hours per week laboratory. Sophomore year, January 1 to March 7, four hours per week judging dairy cattle. Senior year, March 7 to June 1, two hours per week in lecture work in dairy farming. First term, September 8 to December 20, lectures and laboratory work for senior veterans.

nary students; lectures twice a week, laboratory work four hours a week. Address, Prof. Dan T. Gray, Auburn.

Agricultural School of the Tuskegee Normal and Industrial Institute. (Colored.) Regular course, farm dairying two years. Short course of two weeks for farmers. Dairy extension work is carried on with the Jesup wagon, which is a traveling school of agriculture, giving dairy instruction throughout the country. Address, Prof. G. R. Bridgeforth, Tuskegee Institute.

ARIZONA. *University of Arizona.* First course required of all students in long and short courses in agriculture; three hours, second semester, 3 units; lectures, recitations, and laboratory work. Second course required of students in animal husbandry; three hours, second semester, 3 units; lectures and laboratory work. Address, Prof. W. L. Fowler, Tucson.

ARKANSAS. *College of Agriculture of the University of Arkansas.* College course, one term, 18 weeks, 4 hours per week in dairying required of all students. Also elective courses. Address Prof. Carl Christopher, Fayetteville.

CALIFORNIA. *College of Agriculture of the University of California.* Regular college course, junior and senior years. During second semester, four to six hours lectures and laboratory per week. Short courses. All courses in dairy industry offered by the university are given at the university farm, Davis, except an elementary course in milk technology given at Berkeley. Address Prof. Leon M. Davis, University Farm, Davis.

California Polytechnic School. Regular course in dairying, second year, three periods recitation and four periods laboratory per week for 32 weeks. Work in judging, breeding, and feeding dairy cattle is given with the regular animal husbandry classes as follows: Breeds and judging, two periods recitation and four periods practice per week for 32 weeks; feeding, three periods per week for 20 weeks. Special students in dairy manufacture. Address Prof. C. W. Rubel, San Luis Obispo.

COLORADO. *The State Agricultural College of Colorado.* College course taught in junior year; 36 hours theory and 36 hours practice. School of agriculture course in farm dairying, 72 hours. In addition to this work the students in both courses get dairy live stock work, judging, feeding, etc. Extension dairy work. Address Prof. Charles A. Lory, president, Fort Collins.

CONNECTICUT. *Connecticut Agricultural College.* Instruction given in regular course as follows: General dairying, sophomore year, spring term, three hours lectures and three hours laboratory per week. Principles of breeding, junior year, winter term, four hours per week. Animal nutrition, junior year, fall term, three hours lectures per week. Dairy herds, fall term, two hours lectures and four hours laboratory per week. Dairy herd management, junior year, spring term, three hours lectures per week. Commercial dairying, junior year, spring term, two lectures and four hours laboratory work per week. Dairy management, advanced course, senior year, fall term, three hours lectures per week. City milk supply, senior year, winter term, three hours lectures and one hour laboratory per week. Animal breeding, senior year, spring term, advanced study of the principles of breeding. Also dairy instruction is given in the school of agriculture. Address Prof. J. M. Trueman, Storrs.

FLOIDA. *University of Florida.* College course, junior year, 16 weeks, three hours per week. Short course in dairying, same as long course. Four weeks' course for farmers, two hours per week for four weeks. Dairy extension through farmers' institutes. Address Prof. Robert D. Maltby, Gainesville.

Florida Agricultural and Mechanical College for Negroes. Dairy instruction is given to the high school and senior students as may be arranged throughout the school year. The school's dairy is well equipped to afford practice to students in dairying. Address Prof. F. H. Cardozo, agricultural department of the Florida Agricultural and Mechanical College for Negroes, Tallahassee.

GEORGIA. *State College of Agriculture.* Instruction is given to students in the four-year course in agriculture, students taking the one-year course in agriculture, special three months' students, and ten days' students. The college maintains a commercial dairy so that students have the opportunity of studying all phases of dairy work. Address Prof. Milton P. Jarnagin, Athens.

HAWAII. *College of Hawaii.* Dairy extension consists of lectures and personal visits to city dairies where advice is given by the head of the department. A course in dairying is offered for the fall semester. Address President John W. Gilmore, Honolulu.

IDAHO. *College of Agriculture of the University of Idaho.* Department of dairying, four years' dairy course. Freshman year, farm dairying; sophomore year, milk production; junior year, first semester, ice cream and ices, milk testing; second semester, cheese making, judging dairy products, and judging dairy cattle; senior year, first semester, advanced butter making, dairy bacteriology, dairy chemistry, factory management, and dairy engineering; second semester, advanced dairy bacteriology, milk technology. There is also a one-year commercial course in dairying, and a course in domestic dairying is open to domestic-science students. Address Prof. G. E. Frevert, Moscow.

ILLINOIS. *College of Agriculture of the University of Illinois.* Department of dairy husbandry: Dairying required in freshman year, three hours per day, nine weeks. Elective courses. Dairy extension work. Address Prof. W. J. Fraser, Urbana.

INDIANA. *School of Agriculture of Purdue University.* Dairy school, four years' course, eight weeks' course, two weeks' course, one week course. College course, sophomores, one semester, 39 hours lectures and 117 hours laboratory. Juniors, two semesters, 73 hours lectures and 219 hours laboratory. Seniors, two semesters, 146 hours lectures and 219 hours laboratory. Short courses: Eight weeks' course. (a) Farm dairy course, 164 hours lectures and 140 hours laboratory; (b) creamery course, 104 hours lectures and 200 hours laboratory. Two weeks' course for advanced butter makers, 38 hours lectures, 38 hours laboratory. One week course for farmers, 12 hours lectures, 6 hours laboratory. Dairy extension. Address Prof. Otto F. Hunziker, La Fayette.

IOWA. *Iowa State College of Agriculture and Mechanic Arts.* Dairy school, four years' course, one year's course, two weeks' course. College course, freshman year, 38 hours lectures, 38 hours laboratory; sophomores, 38 hours lectures, 152 hours laboratory; juniors, 70 hours lectures, 245 hours laboratory; seniors, 160 hours lectures, 225 hours laboratory, counting credits for thesis and research. Additional elective work is offered in a

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one year course, 2 hours daily lectures and 4 hours laboratory; in a two weeks' course, 36 hours lectures and 48 hours laboratory; a short course is also given. Dairy extension work. Address Prof. Martin Mortensen, Ames.

KANSAS. *Kansas State Agricultural College.* Department of dairy husbandry: Four years' course, two years' short course in dairy production of ten weeks each, one ten weeks' course in commercial dairying, one week course in dairy farming during farmers' institute and a series of four days' courses in cream testing. College course, dairying, second year, first term, 26 hours lectures, 52 hours laboratory. Dairy stock, second year, first term, 52 hours laboratory. The above courses are required of all students in the four years' agricultural group. Third year, third term, dairy inspection, 11 hours lectures, 22 hours laboratory. Advanced dairy judging, 22 hours. Fourth year, first term, purebred dairy cattle, 13 hours lectures, 26 hours laboratory; second term, milk production and herd management, 36 hours lectures. Butter making and creamery management, 36 hours lectures, 48 hours laboratory. Dairy refrigeration, 12 hours lectures, 48 hours laboratory; third term, dairy buildings and equipment, 22 hours lectures. Cheese and ice-cream making, 22 hours lectures, 44 hours laboratory. Dairy seminar, 22 hours. Short courses in dairying, January to March. Extension work. Address Prof. Ed. H. Webster, dean and director, agricultural experiment station, Manhattan.

KENTUCKY. *The State University.* College course, dairying, offered all agricultural students, winter term, junior year, three hours lectures, six hours practice per week. Advanced dairying, winter term, senior year, two hours lectures with laboratory periods as arranged later. Short course, winter term, three hours per week classroom and six hours laboratory per week. Extension work. The dairy work will be enlarged as rapidly as possible. Address Prof. J. J. Hooper, Lexington.

LOUISIANA. *Louisiana State University and Agricultural and Mechanical College.* A course of lectures is given in farm dairying and instruction in regard to running dairy machinery and the manufacture of butter and cheese. Students receive instructions in regard to characteristics of the various breeds of dairy cattle and have practice work in judging dairy stock. Lectures are given on the principles of feeding. Practice work is afforded in compounding rations and estimating the comparative value of foodstuffs. Address Prof. W. R. Dodson, Baton Rouge.

Southern University and Agricultural and Mechanical College (colored). Dairy school, two-years' course; one-half the time is given to theory and one-half to practice. Address Southern University and Agricultural and Mechanical College, New Orleans.

MAINE. *College of Agriculture, University of Maine.* College course: Dairying in the junior year, first semester, two hours per week; lectures and practice in testing laboratory and two lecture hours per week on dairy manufacturing; second semester, three hours practice per week in creamery. Senior year, first semester, for major students three hours lectures per week on manufacturing and marketing, also two hours lectures and four hours laboratory on cheese making. Thesis along dairy lines. School course, 30 hours lectures during the winter and three hours practice per week during one semester. Short course, four weeks, lectures and laboratory work. Extension work. Address Prof. P. A. Campbell, Orono.

MARYLAND. *Maryland Agricultural College.* College course, dairying, junior year, third term, 10 weeks, 3 hours practice per week. Two years' course, third term, 2 hours lectures, 3 hours practice per week. Short course, winter, 10 weeks. Dairy extension by farmers' institutes. Address President R. W. Silvester, College Park.

MASSACHUSETTS. *Massachusetts Agricultural College.* College course, junior year, 36 hours lectures, 36 hours laboratory work. Senior year, 36 hours lectures, 36 hours laboratory work. Short winter course, 10 weeks. Dairy farming, creamery practice, and market milk work. Address Prof. W. P. B. Lockwood, Amherst.

MICHIGAN. *Michigan State Agricultural College.* Dairy school, four winter courses; creamery, eight weeks elementary, eight weeks advanced (open only to those who have completed the elementary course); cheese making, eight weeks; farm dairying, eight weeks. College course, dairying, sophomore year, 12 weeks, 1½ hours theory and 2 hours practice per week. Senior year, 36 weeks, 5 hours theory and 10 hours practice per week. Address Prof. A. Crosby Anderson, East Lansing.

MINNESOTA. *College of Agriculture of the University of Minnesota.* Dairy school, creamery butter making and cheese making, four weeks in winter. College course, one and one-half years class work, one year practice. School of agriculture, six months lectures and practice work on milk production and farm dairy manufacturing. Farmers' short course, four weeks, practice in judging and lectures on dairy husbandry; short course for creamery managers. Extension work. Address Prof. T. L. Haecker, University Farm, St. Paul.

MISSISSIPPI. *Mississippi Agricultural and Mechanical College.* College course, dairying, sophomore year, one term, six hours per week. Junior year, one term, eight hours per week. Senior year, three terms, elective, eight hours per week. Short course in farm dairying for two weeks during the summer months. Address Prof. J. S. Moore, Agricultural College.

MISSOURI. *College of Agriculture and Mechanic Arts of the University of Missouri.* College course, elements of dairying required one semester, freshman year, 34 hours lectures, 54 hours practice. Elective, 102 lectures and 102 periods of laboratory practice in milk production and dairy manufactures. Short course, 14 weeks, beginning first week in November, 2 hours lectures, 4 hours practice per day. Extension work. Address Prof. C. H. Eckles, Columbia.

MONTANA. *Montana State College of Agriculture and Mechanic Arts.* College course, dairying given in freshman, junior, and senior years. Dairy work given in school of agriculture course, first and third years. Extension work in cooperation with creameries of the State with a view to improving dairy herds. Assistance at farmers' institutes in developing the dairy industry in the State. Some time devoted to visiting creameries of the State that apply for special meetings. Address Prof. R. W. Clarke, Bozeman.

NEBRAKSA. *College of Agriculture of the University of Nebraska.* Dairy school, long course, 24 weeks, begins with November; 2 hours lectures and 4 hours practice per week. College course, first and second years, 16 weeks each, with 4 hours practice and 2 hours lectures per week. Short course, dairying, 9 weeks, beginning with January, 4 hours practice and 2 hours lectures. Extension work. Address Prof. J. H. Frandsen, Lincoln.

NEVADA. *College of Agriculture of the University of Nevada.* Short courses in dairying during the months of December and January of each year for benefit of the ranchers. Address Director J. E. Stubbs, Reno.

NEW HAMPSHIRE. *New Hampshire College of Agriculture and the Mechanic Arts.* Dairy school, 10 weeks, beginning with January, three hours laboratory and three hours recitation daily. Four years' course, sophomore year, two lectures and three hours laboratory per week; junior year, two lectures and three hours laboratory, each course 17 weeks. Two years' course, two lectures and three hours laboratory for 16 weeks. Elective courses are offered to both four-year and two-year students. Extension work. Address Prof. Fred Rasmussen, Durham.

NEW JERSEY. *The New Jersey State College for the Benefit of Agriculture and the Mechanic Arts.* College course, senior year, two terms, lectures and laboratory work. Short courses, three months, beginning the first week in December, include lectures and laboratory practice in all branches. Extension work. Address Prof. F. C. Minkler, New Brunswick.

NEW MEXICO. *New Mexico College of Agriculture and Mechanic Arts.* College course, dairying, second semester, sophomore year, two hours lectures, four hours practice per week. Industrial course in agriculture; farm dairying, one hour lecture and four hours practice second semester of fourth year. Address Prof. H. H. Simpson, Agricultural College.

NEW YORK. *New York State College of Agriculture.* College courses represent one to four hours per week each, and altogether require more than half of a student's time for two years. The work is about one-half in the classroom and one-half in the laboratories. Winter dairy course begins early in December, continues 12 weeks, and requires all of the time of a student. The work consists of about three-fourths practice and one-fourth lectures and recitations. Farm dairying is given to students taking the short winter course in general agriculture, three hours per week, or one-fifth of a student's time; two-thirds of this is practice. Extension work. Address Department of Dairy Industry, College of Agriculture, Ithaca.

NORTH CAROLINA. *The North Carolina College of Agriculture and Mechanic Arts.* College course, sophomore year, fall term, 32 lectures, 64 hours practice; senior year dairying, elective, three hours, three terms; total 117 hours. Two years' course, spring term, second year, 24 lectures, 48 hours practice. One-year course, spring term, 24 lectures, 48 hours practice. Eight weeks' winter course includes 16 lectures, 32 hours practice. Address Prof. John C. McNutt, West Raleigh.

The Agricultural and Mechanical College for the Colored Race. Two years' dairy course, equally divided between theory and practice. Short course, four weeks in winter. Address Prof. A. L. Mebane, Greensboro, N. C.

NORTH DAKOTA. *North Dakota Agricultural College.* College course, farm dairying, senior year, 60 hours lectures, 74 hours practice. Three years' farm-husbandry course, 60 hours lectures, 74 hours practice. Short course, farm dairying, winter, 10 weeks, 30 hours lectures, 48 hours practice. Household dairy course, 24 hours lectures and 24 hours practice. Address Prof. George L. Martin, Agricultural College.

OHIO. *College of Agriculture of Ohio State University.* Dairy school, 10 weeks' course beginning January 2. Special one-week courses are given during February. Special 10 weeks' course in dairy farming, elective only to students in the short course in agriculture, two lecture periods and two half-day laboratory periods per week. In the two-year agricultural course

elementary dairying is required in the first semester; second semester, farm dairying, dairy equipment, two lectures and two laboratory periods per week. College course in agriculture, dairying required first semester, junior year, two lectures and two laboratory periods per week. College course, electives in junior and senior years, two lectures and two three-hour laboratory periods per week. Milk inspection, first semester, two hours per week. Extension work. Address Prof. Oscar Erf, Columbus.

OKLAHOMA. *Oklahoma Agricultural and Mechanical College.* College course, 10 weeks in dairy farming, four weeks in creamery butter making, two weeks in ice-cream making, three one-week courses in milk and cream testing, industrial butter-makers' course, teachers' summer normal courses. Farm dairying required in sophomore year, seven hours per week, 10 weeks' course. Elective course in advanced dairying, junior year, one term, seven hours per week. Senior course in dairying, including fall, winter, and spring terms. Two weeks' course in ice-cream making. Address Prof. Roy C. Potts, Stillwater.

OREGON. *Oregon State Agricultural College.* College course, dairying in secondary, sophomore, junior, and senior years; lectures, text, and practice. Dairy school, 16 weeks lectures and practice. Two weeks' course for experienced men. Home dairying for domestic-science students, two credits for one semester. Address Prof. F. L. Kent, Corvallis.

PENNSYLVANIA. *The Pennsylvania State College.* College dairy course, 187 hours lectures and recitations and 442 hours laboratory practice during junior and senior years. Two hours lectures and two hours practice required of all agricultural students. Winter courses, 12 weeks. Special work farmers' week, during the college Christmas recess. A commercial creamery and dairy herd in connection with dairy school. Extension work. Address Prof. H. E. Van Norman, State College.

RHODE ISLAND. *Rhode Island State College.* College course, dairy practice, lectures, and laboratory; junior year, 72 hours, two and one-half credits for first half year required of agricultural students; senior year, 90 hours, three credits second half year, elective for agricultural students in animal husbandry. Short course in agriculture, dairy practice, lectures, and laboratory work, second year, first term, 90 hours, three credits. Address Howland Burdick, Rhode Island State College, Kingston.

SOUTH CAROLINA. *Clemson Agricultural College of South Carolina.* College course, dairying, junior year, seven months, four hours theory, four hours practice per week. Extension work. Address Prof. Archibald Smith, Clemson College.

The Colored Normal, Industrial, Agricultural, and Mechanical College of South Carolina. Instruction in dairying and cheese making. Address Prof. George W. Irwin, Orangeburg, S. C.

SOUTH DAKOTA. *South Dakota State College of Agriculture and Mechanic Arts.* Four years' dairy course leading to degree bachelor of science. Fifteen hours dairy lectures and 15 hours laboratory work each week during two years; advanced dairy work in the laboratories. Three months' dairy course leading to a dairy certificate; 20 hours lectures and daily practice in college creamery are required per week. Students may specialize in butter or cheese making or in economic milk production. One week cream-testing and cream-receiving course. Address Prof. C. Larson, Brookings.

TENNESSEE. *College of Agriculture, University of Tennessee.* College course, sophomore year, first term, principles of dairying; junior year, second term, dairy farming; senior year, first and second terms, elective dairy work. Dairy school four weeks in February. Summer school, dairy course, two weeks in June. Instruction in the summer school is adapted to teachers in county and city schools with a view to creating a wider interest in dairy education. Extension work. Address Dairy Department, University of Tennessee, Knoxville.

TEXAS. *Agricultural and Mechanical College of Texas.* College course: Freshman, 18 weeks, two hours theory and two hours practice required of all students taking the agriculture courses. Junior year dairy course, first and second terms. Senior year dairy course, first and second terms. First year of the two years' course in agriculture, first term, two hours per week practice. Second year, 18 weeks, two hours theory and two hours practice, farm dairying. One week on dairying during farmers' short winter course. Address Prof. J. W. Ridgway, College Station, Tex.

UTAH. *The Agricultural College of Utah.* College course, junior year, 18 weeks dairying, two-thirds practice, three hours per week. Senior year, first term, 18 weeks. Short winter course for farmers and factory men, four weeks dairying, two lectures, six hours practice per day. Address Prof. W. E. Carroll, Logan.

VERMONT. *University of Vermont and State Agricultural College.* College course, dairying, junior year, four months, three hours per week, two-thirds lectures, one-third practice; senior year, four months, three hours per week; short dairy course, nine weeks; experimental work. Address Prof. A. A. Borland, Burlington.

VIRGINIA. *Virginia Agricultural and Mechanical College and Polytechnic Institute.* College course, home dairying, six weeks, nine hours per week, lectures and demonstrations. Creamery butter making, six weeks, nine hours per week, lectures and demonstrations. Cheese making, four weeks, nine hours per week, lectures and demonstrations. Dairy bacteriology, six weeks, nine hours per week, lectures and demonstrations. Apprentice course, home dairying, 12 weeks, 12 hours per week, lectures and demonstrations. Farmers' short course, in connection with general short course, one week, 24 hours lectures and demonstrations. Address Prof. W. K. Brainard, Blacksburg.

Hampton Normal and Agricultural Institute. (Colored.) Regular agricultural course, dairying, six months practice, five hours daily in stables for four months, five hours daily in creamery for two months, sixty 40-minute lectures. Special six weeks' short course, one hour daily in lectures, five hours practice in stables and creamery, fifteen 40-minute lectures; also 15 periods of creamery practice for all girls and boys taking academic courses. Address Prof. C. K. Graham, director, Agricultural Department, Hampton, Va.

WASHINGTON. *State College of Washington.* College course, nine courses offered covering all phases of dairying, lectures, and laboratory work extending throughout the college year. Short course in agriculture six weeks beginning with January. School of elementary science, farm dairying, 19 weeks, two hours per week. Address Registrar, State College, Pullman.

WEST VIRGINIA. *College of Agriculture of West Virginia University.* College course, dairying, six courses of 12 to 14 weeks each, one-third lectures, two-thirds practice. Two courses in advanced dairy work. Short course for farmers, winter, four weeks. Extension work in dairy schools of one week each, in various counties. Address Prof. Charles A. Lueder, instructor in dairying, Morgantown.

WISCONSIN. *College of Agriculture of the University of Wisconsin.* Dairy department: 1. Winter course, beginning with November, 12 weeks. 2. Swiss cheese course, two weeks in February. 3. Special dairy course for creamery and cheese-factory operators and managers, 10 days in February. 4. Summer course, March to November (any 10 weeks). 5. Farm dairy course, December to March, 14 weeks. 6. Long course, September to June each year. 7. Farmers' course, two weeks. College course required freshman year; elective during sophomore, junior, and senior years, half the time theory and half the time laboratory, covering all phases of dairying. Extension work. Address Prof. E. H. Farrington, Madison.

WYOMING. *College of Agriculture of the University of Wyoming.* Dairying is offered in the regular four years' course. Two hours per week. Elective, first semester, junior year. Short course offered. Extension work. Address Prof. Charles J. Oviatt, Laramie.

DAIRY ASSOCIATIONS.

NATIONAL AND INTERNATIONAL.

National Dairy Union. Organized 1891. An organization of the allied dairy interests. Incorporated. Does not receive State aid. President, George L. Flanders; vice president, J. A. Walker; secretary, George M. Whitaker, Washington, D. C.; treasurer, W. D. Hoard. Directors: W. D. Hoard, Fort Atkinson, Wis., George L. Flanders, assistant commissioner of agriculture of New York, Albany, N. Y.; S. B. Shilling, 154 Lake Street, Chicago, Ill.; J. A. Walker, 700 South Clinton Street, Chicago; James Foust, State dairy and food commissioner of Pennsylvania, Harrisburg, Pa. Headquarters of the Union, Washington, D. C.

National Creamery Buttermakers' Association. Organized 1891. Membership 1,200. Not incorporated. President, A. C. Schultz, Platteville, Wis.; vice president, W. E. Mittelstadt, Manchester, Iowa; secretary and treasurer, S. B. Shilling, 136 West Lake Street, Chicago. Executive committee: The above officers and H. E. Forrester, Lake Mills, Iowa; Thor Moe, Winthrop, Minn.

Association of State and National Food and Dairy Departments. Organized 1896. Membership, State and Federal dairy and food-control officials who have paid annual dues. President, Dr. Lucius P. Brown, Nashville, Tenn.; first vice president, Dr. H. E. Barnard, Indianapolis, Ind.; second vice president, C. H. Billingsley, Montgomery, Ala.; third vice president, Joel G. Winkler, St. Paul, Minn.; secretary, Dr. W. M. Allen, Raleigh, N. C.; treasurer, James Foust, Harrisburg, Pa. Executive committee: The president and secretary and Dr. C. D. Woods, Orono, Me.; Dr. S. J. Crumbine, Topeka, Kans.; Dr. Edwin De Bow, Norman, Okla.

National Dairy Show Association. Organized 1905. Incorporated. Object: Exhibition of modern dairy machinery and appliances, dairy products, and dairy cattle, working dairies, and sanitary milk plants. Educational features: Competition in judging contests, meetings of butter and cheese makers, and a national convention of dairymen. Cooperating organiza-

tions: The Dairy Division of the United States Department of Agriculture, the agricultural colleges and experiment stations and associations of breeders of dairy cattle. Officers: President, H. E. Van Norman; vice president, J. D. Nichols; secretary, William Hill, office, Unity Building, Chicago; treasurer, J. A. Walker, manager, William E. Skinner, Unity Building, Chicago.

Official Dairy Instructors' Association. Organized 1906. Membership, the dairy instructors and investigators (of college rank) in the agricultural colleges and experiment stations, the Dairy Division of the United States Department of Agriculture and the Dominion Department of Agriculture, Canada. Object: To advance the interests of dairy instruction and investigation. President, O. F. Hunziker, La Fayette, Ind.; vice president, W. J. Fraser, Urbana, Ill.; secretary-treasurer, W. A. Stocking, jr., Ithaca, N. Y. Annual meeting in connection with the National Dairy Show.

Certified Milk Producers' Association of America. Organized 1908. Membership 30. President, W. E. Miller, Lebanon, Ohio; vice president from New Jersey, Stephen Francisco, Montclair, N. J.; vice president from Maryland, S. M. Shoemaker, Eccleston, Md.; vice president from Pennsylvania, George Wood, Philadelphia, Pa.; vice president from New York, S. L. Stewart, Newburgh, N. Y.; vice president from Ohio, M. Powell, Cleveland, Ohio; secretary-treasurer, R. A. Pearson, Albany, N. Y.

American Association of Creamery Butter Manufacturers. Organized 1908. Membership 55. Headquarters, Chicago, Ill. Object: To promote dairy production, butter manufacturing, butter consumption, and dairy legislation. President, J. A. Walker, Chicago; vice president, A. S. Hanford, Sioux City, Iowa; secretary, George L. McKay, 644 Commercial National Bank Building, Chicago; treasurer, H. S. Johnson, Chicago. Annual meetings, the third Tuesday in February.

American Dairy Farmers' Association. Organized 1909. Object: To improve the dairy interests of America. President, N. P. Hull, Dimondale, Mich.; vice president, V. P. Bailey, Tacoma, Ohio; secretary-treasurer, Helmer Rabild, Washington, D. C. Annual meeting in connection with the National Dairy Show.

National Association of Ice Cream Manufacturers. Organized 1901. President, Edwin C. Sutton, Buffalo, N. Y.; vice president, Robert Crane, Philadelphia, Pa.; secretary, Ross A. Woodhull, Chicago, Ill.; treasurer, William F. Luick, Milwaukee, Wis. Annual meeting in connection with the National Dairy Show.

International Dairy Federation. Organized 1903. Object: Cooperation in dairy matters and discussion of leading questions of dairy interest in different countries, having especially in view the suppression of fraudulent dealing in the sale of butter and oleomargarin, fostering sanitary milk and dairy products generally, and maintaining the international association. President, Baron Peers, Nieuwburg, Belgium; secretary general, L. Gedoelst, Brussels, Belgium. Headquarters of the federation, 15 rue Meyerbeer 15, Brussels.

American Association of Medical Milk Commissions. See page 22.

International Milk Dealers' Association. Organized 1907. Membership 30. Object: The improvement of city milk supplies. President, J. D. Nichols, Cleveland, Ohio; vice president, Loton Horton, Slawson-Decker Co., New York, N. Y.; secretary-treasurer, S. O. Dungan, Polk Sanitary Milk Co., Indianapolis, Ind.

International Association of Dairy and Milk Inspectors. Organized 1911. Object:

To develop uniform and efficient inspection of dairy farms, milk establishments, milk and milk products, and to place the inspection of the same in the hands of men who have a thorough knowledge of dairy work. President, C. J. Steffen, Milwaukee, Wis.; vice presidents, G. M. Henderson, Seattle, Wash.; George M. Whitaker, Washington, D. C.; W. H. Price, Detroit, Mich.; secretary-treasurer, I. C. Weld, Washington, D. C.

STATE.

ALABAMA. *Alabama State Dairy Association.* Was merged with the Alabama Live Stock Association February, 1912. Alabama Live Stock Association was organized 1896. Membership 250. Not incorporated. Does not receive State aid. Object: To promote all the live-stock interests of the State in every legitimate way. President, C. A. Cary, Auburn; secretary, J. S. Kernachan, Sheffield; treasurer, Dan T. Gray, Auburn.

CALIFORNIA. *California Creamery Operators' Association.* Organized 1900. Membership 250. Not incorporated. Does not receive State aid. Aided by volunteer subscriptions and by firms interested in and identified with the industry. President, C. C. Ridgway, Porterville; vice president, F. H. Daniels, Alameda; secretary, J. H. Severin, Oakland.

COLORADO. *State Dairymen's Association.* Organized 1908. Charter membership, 30; present membership, 300. Is not incorporated. Does not receive State aid. President, C. B. Frink, Larkspur; vice president, Gilbert Landell, Fort Lupton; secretary, B. G. D. Bishopp, Fort Collins; treasurer, H. D. Parker, Greeley.

CONNECTICUT. *Connecticut Dairymen's Association.* Organized 1882. Membership 488. Incorporated 1889. Receives State aid, \$1,500. President, G. Warren Davis, Norwich; vice president, F. E. Duffy, West Hartford; secretary, J. G. Schwink, jr., Meriden; treasurer, R. E. Buell, Wallingford.

Connecticut Creamery Association. Organized 1890. Membership 18. Not incorporated. Does not receive State aid. President, H. H. Ellsworth, Windsor; vice president, F. H. Stadtmueller, Elmwood; secretary-treasurer, John M. Williams, Manchester.

GEOGRAPHY. *Georgia Dairy and Live-stock Association.* Organized 1905. Membership 100. Not incorporated. Does not receive State aid. President, C. L. Willoughby, Ingleside; vice president, G. F. Hunnicutt, Hopeville; secretary, Milton P. Jarnagin, Athens; treasurer, J. William Hart, Athens.

IDAHO. *Idaho State Dairy Association.* Organized 1899. Aided by private donations. President, H. J. Youngs, Twin Falls; vice president, D. R. Hubbard, Boise; secretary, E. V. Ellington, Moscow; treasurer, A. P. Scritchfield.

ILLINOIS. *Illinois State Dairymen's Association.* Organized 1874. Membership 500. Incorporated. Receives State aid, \$2,500. President, J. P. Mason, Elgin; vice president, L. N. Wiggins, Springfield; secretary, George Caven, 136 West Lake Street, Chicago; treasurer, Charles Foss, Cedarville.

Milk Producers' Institute of Illinois. Organized 1904. Incorporated. Receives State aid, \$500; other aid, exclusive of membership fees, \$500. President, D. D. Hunt, De Kalb; vice president, H. S. Early, Sycamore; secretary, J. M. MacVean, 53 West Kinzie Street, Chicago; treasurer, L. E. Mentch, Cary.

Illinois Dairy Cattle Improvement Association. Organized 1907. Membership 25. Not incorporated. Does not receive State aid. President, A. O. Auten, Jerseyville; vice president, J. P. Mason, Elgin; secretary, Charles F. Mills, Springfield; treasurer, W. J. Fraser, Champaign.

Illinois Butter Manufacturers' Improvement Association. Organized May, 1911. Not incorporated. Does not receive State aid. President, Joseph Newman, Elgin; vice president, H. C. Horneman, Watseka; secretary, F. A. Jorgensen, Peoria; treasurer, J. C. Joslin, 208 North Fifth Avenue, Chicago.

INDIANA. *Indiana State Dairy Association.* Organized 1891. Membership 250. Incorporated 1907. State aid, \$500; from the supply houses, \$300. President, I. B. Calvin, Kewanee; vice president, C. B. Benjamin, Crown Point; secretary-treasurer, J. D. Jarvis, La Fayette.

IOWA. *Iowa State Dairy Association.* Organized 1877. Membership 500. Incorporated. State aid for biennial period, \$7,500. President, R. B. Young, Buffalo Center; vice president, L. L. Flickinger; Fredericksburg; secretary, J. J. Ross, Iowa Falls; treasurer, E. T. Sadler, Waterloo; field man, E. S. Estel.

Iowa Buttermakers' Association. Membership 275. Does not receive State aid. President, C. N. Hart, Plymouth; vice president, L. P. Anderson, Algona; secretary, J. J. Brunner, Strawberry Point; treasurer, G. O. Miller, Arlington.

KANSAS. *Kansas State Dairy Association.* Organized 1888. Membership 300. Not incorporated. Does not receive State aid. President, T. A. Borman, Topeka; vice president, C. S. Graybill, Abilene; secretary-treasurer, I. D. Graham, Topeka.

• *Kansas Creamerymen's Association.* Organized 1909. Membership 25. President, A. S. Kininmonth, Winfield; vice president, N. H. Skourup, Pittsburgh; secretary-treasurer, P. F. Edquist, Topeka.

KENTUCKY. *Kentucky Cattle Club.* Organized 1906. Charter membership 27; present membership 100. Incorporated. Does not receive State aid. President, E. A. Farra, Nicholasville; vice presidents, Charles Bright, Eminence; James Middleton, Shelbyville; secretary-treasurer, J. J. Hooper, Lexington.

MAINE. *Maine Dairymen's Association.* Organized 1898. Membership 200. Incorporated. Receives State aid, \$700. President, L. E. McIntire, East Waterford; vice president, H. G. Beyer, jr., Portland; secretary, Leon S. Merrill, Orono; treasurer, R. Alden, Winthrop.

Maine Creamerymen's Association. Organized 1903. Membership, 25. President, W. K. Hamlin, South Waterford. Vice president, E. L. Bradford, Auburn. Secretary, Elmer E. Harris, Skowhegan. Treasurer, J. D. McEdwards, Bangor.

MARYLAND. *Maryland State Dairymen's Association.* Organized 1908. Membership, 45. Incorporated. President, S. M. Shoemaker, Eccleston. Vice president, A. W. Nicodemus, jr., Buckeystown. Secretary-treasurer, Oscar B. Schier, Baltimore.

MASSACHUSETTS. *Massachusetts Dairymen's Association.* Organized 1911. Membership, 25. Incorporated. Does not receive State aid. President, W. D. Hurd, Amherst. Vice president, Burton W. Potter, Worcester. Second vice president, Rufus W. Stinson, Boston. Secretary, W. P. B. Lockwood, Amherst. Treasurer, Warren C. Jewett, Worcester.

Massachusetts Creamery Association. Organized 1895. Membership, 30. Not incorporated. Does not receive State aid. President, W. A. Harlow, Swift River. Vice president, R. W. Pease, Northampton. Secretary-treasurer, W. P. B. Lockwood, Amherst.

MICHIGAN. *Michigan Dairymen's Association.* Organized 1885. Membership, 510. Incorporated. Does not receive State aid. Other aid, exhibition space and contributions to premium fund, \$500. President, Fred L. Eldridge. Vice president, F. H. Vandenboom, Marquette. Secretary-treasurer, William H. Bechtel, Caro.

Michigan Association of Creamery Owners and Managers. Organized 1910. Membership, 70. Not incorporated. Does not receive State aid. President, W. H. Bechtel, Caro. Vice president, T. C. Halpin, Detroit. Secretary-treasurer, Martin Seidel, Saginaw.

MINNESOTA. *Minnesota State Dairymen's Association.* Organized 1877. Membership, 850. Incorporated. Receives State aid, \$2,000 annually, \$2,000 special. President, Andrew French, St. Paul. Vice president, Charles Nelson, Litchfield. Second vice president, Charles Heen, Osakis. Secretary, F. D. Currier, Nicollet. Treasurer, J. M. Jack, Stanton.

Minnesota State Butter and Cheese Makers' Association. Organized 1894. Membership, 480. Incorporated in 1895. State aid, \$732.17. President, James Pomeroy, Mapleton. Vice president, A. G. Redmann, Buffalo. Secretary, M. Sorenson, Clarissa. Treasurer, J. J. Roch, Pine Island.

Minnesota Cooperative Dairies Association. Organized 1907. Membership, 115. Incorporated. Does not receive State aid. President and general manager, J. R. Morley, Owatonna. Vice president, C. Soley, Maple Plain. Secretary, C. A. Morse, Sauk Center. Treasurer, John McClay, Hewitt.

MISSISSIPPI. *Mississippi Live Stock and Dairy Association.* Organized 1909. Membership, 200. President, W. S. Turner, Crawford. Vice president, J. M. Taylor, Port Gibson. Secretary, Dr. E. M. Ranck, Agricultural College.

MISSOURI. *Missouri State Dairy Association.* Organized 1890. Membership, 500. Not incorporated. Does not receive State aid. President, Marshall Gordon, Columbia. Vice president, J. W. Kent, Kansas City. Second vice president, L. E. Cline, Columbia. Secretary, P. M. Brandt, Columbia. Treasurer, Rudolph Miller, Macon.

MONTANA. *Montana State Dairymen's Association.* Organized 1906. Membership, 50. Not incorporated. Does not receive State aid. President, J. L. Carruthers, Victor. Vice president, W. H. Thompson, Great Falls.

NEBRASKA. *Nebraska Dairymen's Association.* Organized 1885. Membership, 260. Not incorporated. Receives State aid, \$1,000. President, Charles L. Schwager, Omaha. Vice president, E. M. Little, Silver Creek. Secretary-treasurer, S. C. Bassett, Gibbon.

NEW HAMPSHIRE. *Granite State Dairymen's Association.* Organized 1884. Membership, 110. Incorporated. Receives State aid, \$700 annual appropriation. President, George H. Yeaton, Dover. Vice presidents, W. D. Hayden, Dover; Arthur B. Hough, Lebanon. Secretary, C. W. Phillips, East Candia.

NEW YORK. *New York State Dairymen's Association.* Organized 1877. Life members, 375. Annual members, 225. Incorporated 1881. Does not receive State aid. Is self-sustaining from advertising. President, E. H. Dollar, Heuvelton. Vice president, H. C. Ellwood, Buffalo. Secretary, W. E. Griffith, Madrid. Treasurer, R. R. Kirkland, Philadelphia.

NORTH CAROLINA. *North Carolina State Dairymen's Association.* Organized 1905. Membership, 48. Not incorporated. Does not receive State aid. President, R. L. Shuford, Newton. Vice president, A. L. French, Byrdsville, Va. Secretary-treasurer, W. H. Eaton, Raleigh.

NORTH DAKOTA. *North Dakota Dairymen's Association.* Organized 1891. Membership, about 220. Not incorporated. Does not receive State aid. President, William F. Stege, Medina. Vice president, U. J. Downey, New Salem. Secretary, R. F. Flint, Bismarck. Treasurer, G. L. Martin, Fargo.

OHIO. *Ohio State Dairymen's Association.* Organized 1894. Membership, 285. Not incorporated. Does not receive State aid. President, L. P. Bailey, Tacoma. Vice president, J. D. Nichols, Cleveland. Secretary-treasurer, Prof. Oscar Erf, State University, Columbus. Assistant secretary, O. C. Cunningham, Columbus.

OKLAHOMA. *Oklahoma State Dairymen's Association.* Organized 1908. Membership, 60. Not incorporated. Does not receive State aid. President, J. E. Nissley, Guthrie. First vice president, J. F. Ball, Shawnee. Second vice president, Robert Peebley, Oklahoma City. Secretary-treasurer, Prof. Roy C. Potts, Stillwater.

OREGON. *Oregon Dairymen's Association.* Organized 1892. Membership, 100. Not incorporated. Does not receive State aid. President, M. S. Shrock, Banks. First vice president, J. M. Dickson, Shedd. Second vice president, William Larsen, Astoria. Secretary-treasurer, F. L. Kent, Corvallis. *Oregon Butter and Cheese Makers' Association.* Organized 1910. Membership, 100. Does not receive State aid. President, C. H. Fraer, Corvallis. Vice president, T. S. Townsend, Portland. Secretary-treasurer, Prof. F. L. Kent, Corvallis.

PENNSYLVANIA. *Pennsylvania Dairy Union.* Organized 1898. Membership, 300. Not incorporated. Receives occasional aid from the State. President, F. A. Wills, Philadelphia. Vice president, M. T. Phillips, Pomeroy. Secretary, Prof. H. E. Van Norman, State College. Treasurer, W. E. Perham, Pleasant Mount.

SOUTH CAROLINA. *South Carolina Live Stock Association (including dairy).* Organized 1902. Membership, 140. Not incorporated. Receives State aid irregularly. President, W. D. Byrd, Laurens. Vice president, in charge of the department of dairy cattle, W. T. Walker, Blacksville. Vice president in charge of the department of dairy manufactures, B. Harris, Pendleton. Secretary-treasurer, J. M. Burgess, Clemson College.

SOUTH DAKOTA. *South Dakota Dairymen's and Butter Makers' Association.* Organized 1906. Membership, 150. Not incorporated. Does not receive State aid. President, E. H. Halls, Garretson. Vice president, P. A. Zollman, Alexandria. Secretary-treasurer, A. P. Rygers, Brookings.

TENNESSEE. *Tennessee Dairy Association.* Organized 1907. Membership, 100. Incorporated. Does not receive State aid. President, L. R. Campbell, Nashville. Vice presidents: For East Tennessee, Dr. M. Jacob, Knoxville; for Middle Tennessee, J. L. Bingham; for West Tennessee, Ford N. Taylor, Memphis. Secretary-treasurer, J. J. Murray, Lewisburg.

TEXAS. *Texas State Dairymen's Association.* Organized 1894. Membership, 100. Not incorporated. Does not receive State aid. President, B. F. Frasher, Cleburne. Vice President, M. C. La Baron, Sherman. Secretary-treasurer, C. M. Evans, College Station. Educational work.

Texas Creamery Association. Organized 1907. Active membership, 60; associate membership, 10. Not incorporated. Does not receive State aid. President, J. R. Donnell. Vice president, J. F. Kline, San Antonio. Secretary-treasurer, G. E. Adams, Austin.

UTAH. *Utah State Dairymen's Association.* Reorganized 1909. Membership, 57. Not incorporated. Does not receive State aid. President, Ben R. Eldredge, Salt Lake City. Vice president, Joseph Rine, Ogden. Secretary, L. A. Merrill, Salt Lake City.

VERMONT. *Vermont Dairymen's Association.* Organized 1869. Membership, 640. Not incorporated. Receives State aid, \$1,000, and about \$400 from advertising. President, W. E. Carter, Rutland. First vice president, G. J. Turnbull, Orleans. Second vice president, C. C. Jones, Bennington. Secretary, F. H. Bickford, Bradford. Treasurer, M. A. Adams, Derby.

VIRGINIA. *Virginia State Dairymen's Association.* Organized 1907. Membership, 131. Incorporated. Does not receive State aid. President, Joseph A. Turner, Hollins. Vice president, T. P. Shelton, Burkeville. Secretary-treasurer, W. D. Saunders, Hunter Hall.

WASHINGTON. *Washington State Dairymen's Association.* Organized 1894. Membership, 175. Not incorporated. Does not receive State aid. President, Donald McInnis, Seattle. Vice president, C. W. Orton, Sumner. Secretary-treasurer, Dr. F. E. Smith, Prefontaine Building, Seattle.

WEST VIRGINIA. *West Virginia State Dairy Association.* Organized 1903. Membership, 120. Not incorporated. Does not receive State aid. President, William Hills, Bethany. Secretary, C. A. Lueder, Morgantown.

WISCONSIN. *Wisconsin Dairymen's Association.* Organized 1872. Membership, 200. Not incorporated. Receives State aid, \$3,000. President, E. C. Jacobs, Elkmund. Vice presidents, all former presidents. Secretary, A. J. Glover, Fort Atkinson. Treasurer, H. K. Loomis, Sheboygan Falls.

Wisconsin Buttermakers' Association. Organized 1901. Membership, 500. Incorporated. Receives State aid, \$600. President, Lauritz Olsen, West De Pere. Vice president, F. Bowar, Cazenovia. Secretary, Prof. G. H. Benkendorf, Agricultural College, Madison. Treasurer, A. W. Zimmerman, Norwalk.

Wisconsin Cheesemakers' Association. Organized 1893. Membership, 450. Incorporated. Receives State aid, \$600. President, O. A. Damrow, Sheboygan Falls. Vice president, J. J. Reid, Oconomowoc. Secretary, U. S. Baer, Madison. Treasurer, A. T. Bruhn, Madison.

Wisconsin Association of Creamery Owners and Managers. Organized 1911. Does not receive State aid. President, Guy Speirs, Eau Claire. Vice president, W. J. Ennison, La Crosse. Secretary-treasurer, C. Williams, Augusta.

Wisconsin Dairy Manufacturers' and Milk Producers' Protective Association. Organized 1907. Specific object: To look after the interests of Wisconsin creamery and dairy men in matter of rates for transportation of cream. President, F. A. Seiber, Waterloo. Vice president, W. A. Roach, Waterloo. Secretary, J. G. Moore, Madison. Treasurer, H. Sorge, Reedsburg.

CANADIAN.

ONTARIO. *Dairymen's Association of Eastern Ontario.* Organized 1869. Membership, 300. Incorporated. Receives State aid, \$2,500 per annum with local contributions. President, J. H. Singleton, Smiths Falls. First

vice president, G. A. Gillespie, Peterboro. Second vice president, James A. Sanderson, Oxford Station. Secretary, T. A. Thompson, Almonte. Treasurer, J. R. Anderson, Mountain View.

Dairymen's Association of Western Ontario. Organized 1867. Membership, 330. Receives State aid, \$2,000 per annum. President, D. A. Dempsey, Stratford. First vice president, S. R. Wallace, Burgessville. Secretary-treasurer, F. Herns, London.

MILK EXCHANGES.

Philadelphia Milk Exchange (Philadelphia, Pa.). Organized 1886. Membership, 100. Incorporated. President, Robert J. Harbison. Vice president, Henry N. Woolman. Secretary, Joseph H. Gravenstine, 1537 North Twenty-third Street. Treasurer, H. Dolfinger.

Consolidated Milk Exchange (New York, N. Y.). President, J. A. McBride, Sussex, N. J. Vice president, George Slaughter, Brooklyn, N. Y. Secretary, Fred E. Seiler, Newark, N. J. Treasurer, Joseph Laemmle, 202 Bleeker Street, New York, N. Y.

San Francisco Wholesale Dairy Produce Exchange (San Francisco, Cal.). President, W. J. Langstaff. Vice president, Samuel Martin. Secretary, J. R. Kinsman. Treasurer, F. E. Booth. Address, 130-134 Hanford Building, San Francisco, Cal.

MEDICAL MILK COMMISSIONS IN THE UNITED STATES AND CANADA.

The American Association of Medical Milk Commissions. Organized 1907. President, Dr. Ogden M. Edwards, jr., Pittsburgh, Pa. Secretary, Dr. Otto P. Geier, 124 Garfield Place, Cincinnati, Ohio. Treasurer, Dr. Samuel McC. Hamill, 1822 Spruce Street, Philadelphia, Pa.

Canadian Medical Association Milk Commission, Toronto, Canada. Organized 1908. Chairman, Dr. Charles J. Hastings, City Municipal Building, Toronto.

Milk Commission of the Academy of Medicine, Toronto, Canada. Organized 1908. Chairman, Dr. Henry T. Machell. Secretary-treasurer, Dr. W. L. T. Addison, 431 Broadview Avenue.

Milk Commission of Los Angeles County Medical Association, Los Angeles, Cal. Organized 1907. President, Dr. Fitch C. E. Mattison. Secretary, Dr. George H. Kress, 240 Bradbury Building.

Milk Commission of the Alameda County Medical Society,¹ Oakland, Cal. Reorganized 1909. President, Dr. Thomas C. McCleave, National Bank Building, Berkeley. Secretary, Dr. J. K. Hamilton, Bay Station, Alameda.

Milk Commission of the San Francisco County Medical Society, San Francisco, Cal. Organized 1905. President, Dr. Adelaide Brown, 45 Sixteenth Avenue. Secretary, Dr. E. C. Fleischner, 350 Post Street.

Milk Commission of the Greenwich Medical Society, Greenwich, Conn. Organized 1908. Chairman, Dr. W. A. Klein. Secretary-treasurer, Dr. Edward O. Parker.

¹ Oakland Home Club Milk Commission, Oakland, Cal. Organized 1904.
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Milk Commission of the Hartford County Medical Society, Hartford, Conn. Organized 1902. Chairman, Dr. Walter G. Murphy. Secretary, Dr. R. S. Starr, 75 Pratt Street, Hartford.

Medical Milk Commission of Duval County Medical Society, Jacksonville, Fla. Organized 1908. Chairman, Dr. R. H. McGinnis. Secretary, Dr. William Edson Ross, 602 Consolidated Building, Jacksonville.

Milk Commission of Chicago Medical Society, Chicago, Ill. Organized 1908. President and chairman, Dr. J. W. Van Derslice, 155 North Ridgeland Avenue, Oak Park, Ill. Secretary, Dr. Robert A. Black, Del Prado Hotel.

Milk Commission¹ of Galesburg, Ill. Organized 1908. President, Dr. B. D. Baird. Secretary, Dr. E. N. Nash.

Milk Commission of Indianapolis Medical Society, Indianapolis, Ind. Organized 1908. President, Dr. Charles E. Ferguson. Secretary, Dr. O. N. Torian, Hume-Mansur Building.

Fayette County Medical Society's Milk Commission (Kentucky). Organized 1911. Chairman, Dr. E. B. Bradley. Secretary, Dr. B. W. Barrow, Lexington.

Milk Commission of Jefferson County Medical Society, Louisville, Ky. Organized 1906. Chairman, Dr. Cuthbert Thompson. Secretary, Dr. Ben Carlos Frazier, Atherton Building.

New Orleans Pure Milk Society (Louisiana). Organized 1910. President, Dr. W. W. Butterworth. Secretary, R. H. Polack.

Medical Milk Commission of Boston (Massachusetts). Incorporated 1911. President, Dr. James Marsh Jackson. Secretary, Dr. Richard M. Smith, 222 Marlborough Street.

Medical Milk Commission of Cambridge, Mass. Organized 1906. Chairman, Dr. William D. Swann. Secretary, Dr. Albert P. Norris, 760 Massachusetts Avenue, Cambridge.

Medical Milk Commission of the city of Malden (Mass.). Organized 1909. Chairman, Dr. A. J. Stevens, 539 Main Street. Secretary, Dr. E. W. Barron, 300 Pleasant Street.

Medical Milk Committee of New Bedford, Mass. Organized 1910. President, Dr. C. A. Pratt. Secretary, Dr. W. A. Niele.

Medical Milk Commission of Worcester, Mass. Organized 1908. President, Dr. Walter L. Jennings. Secretary, Dr. R. J. Ward, 397 Pleasant Street.

Medical Milk Commission of Wayne County, Mich. Organized 1911. President, Dr. Guy L. Kiefer. Secretary, Dr. W. H. Price, 413 Washington Arcade, Detroit.

Milk Commission¹ of Hennepin County Medical Society, Minneapolis, Minn. Chairman, Dr. G. D. Haggard, 2400 Chicago Avenue.

Milk Commission of the Ramsey County Medical Society, St. Paul, Minn. Organized 1906. President, J. O'Hage. Secretary, J. T. Christison, St. Paul.

Kansas City Pure Milk Commission, Kansas City, Mo. Organized 1907. Chairman, Dr. George C. Mosher, 605 Bryant Building. Secretary, Dr. D. E. Broderick, 933 Rialto Building.

¹ Organized, but not at present certifying any milk.

St. Louis Pure Milk Commission, St. Louis, Mo. Organized 1904. President, Dr. George M. Tuttle. Secretary, H. E. Mortland, 1726 North Thirteenth Street.

Omaha Milk Commission, Nebraska. Organized 1910. President, Dr. S. R. Towne. Secretary, Dr. C. W. Pollard.

Medical Milk Commission of Essex County, N. J. Organized 1893. President, Dr. Henry L. Coit, Newark. Secretary, Dr. Floy McEwen, 299 Belleville Avenue, Newark.

Medical Milk Commission of the County of Hudson, N. J. Organized 1910. Chairman, Dr. J. A. Exton, Arlington. Secretary, Dr. S. A. Cosgrove, 9 Virginia Avenue, Jersey City.

Ocean County Medical Society Milk Commission, Lakewood, N. J. Organized 1908. Chairman, Dr. William G. Schauffler. Secretary, Dr. Irwin H. Hance, Lakewood.

Milk Commission of Passaic County Medical Society, Paterson, N. J. Organized 1908. President, Dr. Francis H. Todd. Secretary and Treasurer, Dr. G. Edward Tuers, 12 Church Street.

Union County Medical Milk Commission No. 2, Elizabeth, N. J. Organized 1909. Chairman, Dr. Edgar B. Grier. Secretary, Dr. Arthur Stern, 224 East Jersey Street.

Union County Medical Milk Commission No. 3, Summit, N. J. Organized 1909. President, Dr. Eliot Gorton. Secretary, Dr. David E. English, Summit.

Milk Commission of the Medical Society of the County of Albany, Albany, N. Y. Organized 1902. Chairman, Dr. James P. Boyd. Secretary, Dr. Henry L. K. Shaw, 361 State Street, Albany.

Broome County Medical Milk Commission, Binghamton, N. Y. Organized 1908. President, Le Roy D. Farnham, 42 Main Street. Secretary, Dr. C. W. Greene, 16 Jay Street.

Milk Commission of Medical Society of the County of Kings, Brooklyn, N. Y. Organized 1901. Chairman, Dr. W. D. Ludlum. Secretary and Treasurer, Dr. Alfred Bell, 37 Linden Street, Brooklyn.

Milk Commission of the Elmira Academy of Medicine, Elmira, N. Y. Organized 1902. Chairman, Dr. Theron A. Wales. Secretary, Dr. Rose G. Loop, 54 South Main Street, Elmira.

Milk Commission of the Medical Society of the County of Erie (N. Y.). Organized 1912. Chairman, Dr. N. G. Russell. Secretary, Dr. C. W. Greene, 469 Franklin Street, Buffalo, N. Y.

Milk Commission of the Medical Society of the County of New York. Organized 1900. Chairman, Dr. E. K. Dunham. Secretary, Dr. Rowland G. Freeman, 211 West Fifty-seventh Street, New York City.

Milk Commission of Medical Society of County of Monroe, Rochester, N. Y. Organized 1906. Chairman, Dr. Richard M. Moore. Secretary, Dr. J. R. Williams, 388 Monroe Avenue.

New York Medical Milk Commission. Organized 1896. Chairman, Dr. John H. Huddleston, 145 West Seventy-eighth Street, New York City. Secretary, Dr. L. E. La Fetra, 113 East Sixty-first Street, New York City.

Milk Commission of the Medical Society of the County of Dutchess, Poughkeepsie, N. Y. Organized 1910. President, Dr. A. L. Peckham. Secretary, Dr. C. Knight Deyo.

Franklin County Milk Commission,¹ Saranac Lake, N. Y. Organized 1909. President, Dr. E. R. Baldwin. Secretary, Dr. D. C. Twichell.

Milk Commission of the Onondaga Medical Society, Syracuse, N. Y. Organized 1905. Chairman, Dr. A. Clifford Mercer. Secretary, Dr. Albert S. Hotaling, 801 East Genesee Street.

Milk Commission of Summit County Medical Society, Akron, Ohio. Organized 1908. President, Dr. J. H. Weber. Secretary, Dr. A. S. McCormick, 326 South Main Street.

Milk Commission of the Cincinnati Academy of Medicine, Cincinnati, Ohio. Organized 1906. Chairman, Dr. Alfred Friedlander. Secretary, Dr. Otto P. Geier, 124 Garfield Place.

Milk Commission, city of Cleveland, Cleveland, Ohio. Organized 1904. President, Samuel Mather. Secretary-Treasurer, Dr. J. J. Thomas, 1110 Euclid Avenue.

Milk Commission of Academy of Medicine of Columbus, Ohio. Organized 1908. President, Dr. Ernst Scott. Secretary, Dr. George C. Schaeffer, 112 East Broad Street.

Milk Commission of Montgomery County Medical Society, Dayton, Ohio. Organized 1907. President, Dr. C. W. King. Secretary, Dr. A. L. Light, 1000 U. B. Building.

Milk Commission of the Academy of Medicine, Toledo, Ohio. Organized 1907. President, Dr. C. F. Tenney. Secretary, Dr. H. G. Morgan.

Milk Commission of Northampton County Medical Society, Easton, Pa. Organized 1908. Chairman, Sterling D. Shimer.

Medical Milk Commission of Erie County, Erie, Pa. Organized 1909. Secretary, Dr. C. G. Strickland, Erie.

Milk Commission of the Philadelphia Pediatric Society (Pa.). Organized 1899. Chairman, Dr. Samuel McG. Hamill. Secretary, Dr. Arthur Newlin, 1804 Pine Street, Philadelphia, Pa.

Milk Commission of the Allegheny County Medical Society, Pittsburgh, Pa. Organized 1907. Chairman, Dr. Ogden M. Edwards, jr. Secretary, Dr. William H. Cameron, 4615 Forbes Street.

Certified Milk Commission of Seattle (Wash.). Organized 1907. President, Dr. P. V. Von Phul. Secretary, W. G. Booth.

Wheeling Certified Milk Commission, Wheeling, W. Va. Organized 1909. President, Dr. Robert J. Reed. Secretary, Dr. William H. McLain, 83 Twelfth Street.

Milk Commission of the Milwaukee Medical Society, Milwaukee, Wis. Organized 1903. Chairman, Dr. Albert W. Myers. Secretary, Dr. W. T. McNaughton, 208 Stephenson Building.

¹ Organized, but not at present certifying any milk.

ASSOCIATIONS OF BREEDERS OF PUREBRED DAIRY ANIMALS.

The interests of the different breeds of dairy cattle are in charge of organizations of breeders, which determine purity of breeding, verify pedigrees, register eligible animals, and publish herdbooks. Some of them record and publish sales and transfers and attested records of dairy performances. They also establish standards of excellence. The details of the work are usually left to the secretary. The names of the various associations and the addresses of the secretaries are as follows:

Ayrshire Breeders' Association. Secretary, C. M. Winslow, Brandon, Vt.

Brown Swiss Cattle Breeders' Association. Secretary, Ira Inman, Beloit, Wis.

Dutch Belted Cattle Association of America. Secretary, G. G. Gibbs, Marksboro, N. J.

American Guernsey Cattle Club. Secretary, William H. Caldwell, Peterboro, N. H.

Holstein-Friesian Association of America. Secretary, F. L. Houghton, Brattleboro, Vt.

American Jersey Cattle Club. Secretary, R. M. Gow, 324 West Twenty-third Street, New York, N. Y.

American Kerry and Dexter Cattle Club. Secretary, Prof. C. S. Plumb, Ohio State University, Columbus, Ohio.

In addition to the strictly dairy cattle named above, some breeds, primarily developed for beef production, are occasionally bred and used as dairy cattle. Their associations are as follows:

American Devon Cattle Club. Secretary, L. P. Sisson, Charlottesville, Va.

American Polled Durham Breeders' Association. Secretary, J. H. Martz, Greenville, Ohio.

Red Polled Cattle Club of America. Secretary, H. A. Martin, Gotham, Wis.

American Shorthorn Breeders' Association. Secretary, John W. Groves, 13 Dexter Park Avenue, Union Stock Yards, Chicago, Ill.

The following breeds are of practical dairy value, although not yet officially certified as purebred:

The American Polled Jersey Cattle Club. Secretary, Charles S. Hatfield, R. F. D. 4, Springfield, Ohio.

American Milk Goat Record Association. Secretary, J. C. Darst, Dayton, Ohio.

Approved:

JAMES WILSON,

Secretary of Agriculture.

WASHINGTON, D. C., June 24, 1912.

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